

MITIGATION MONITORING AND REPORTING PROGRAM

DUTCH SLOUGH TIDAL MARSH RESTORATION PROJECT SUPPLEMENTAL EIR

The *California Environmental Quality Act* (CEQA) requires the adoption of feasible mitigation measures to reduce the severity and magnitude of potentially significant environmental impacts associated with project development. The Final EIR for the Dutch Slough project includes mitigation measures to reduce the potential environmental effects of the proposed project.

Monitoring of the implementation of adopted mitigation measures is required by Public Resources Code §21081.6. Following certification of the Final Supplemental EIR (SEIR) and approval of this Mitigation Monitoring and Reporting Program (MMRP) by the Department, the mitigation measures included in the Final SEIR will be implemented for each impact.

All project-specific mitigation measures in this MMRP will be monitored. The following MMRP matrix includes all of the applicable mitigation and monitoring information for the proposed project, as described in the EIR and updated in the SEIR. The SEIR only included the chapters from the Final EIR which had been revised; all Mitigation Measures in those chapters were given new numbers. Mitigation Measures from EIR chapters not included in the SEIR retain their EIR numbering.

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
3.1 HYDROLOGY AND GEOMORPHOLOGY			
Mitigation 4.1-1 Erosion Monitoring and Adaptive Management The existing perimeter levees along Emerson Slough shall be monitored for erosion by the Project for at least 5 years post-construction. This will allow for adaptive management of the Project site. If erosion is so great that it undermines levees, or causes water quality impairments, improvements such as channel armoring shall be implemented to manage and reduce erosion. Upon completion of the 5-year monitoring period, results shall be evaluated to determine if excessive erosion is occurring and to recommend whether further monitoring is needed.	DWR or its contractor will conduct monitoring of erosion in the terminal sloughs.	DWR Project Manager	Ten years post-breaching.
Mitigation 4.1-2 Marsh Creek Channel Monitoring Monitoring of the new Marsh Creek channel shall be performed for fifteen years to ensure that sedimentation is not negatively affecting flood flow conveyance. Monitoring shall be performed annually for the first five years, and, depending upon those results, every two years for the next 10 years. In addition, supplemental monitoring would occur after any emergency flood event (a	DWR will conduct monitoring and coordinate with CCCFCWCD.		

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10-year or greater flow event) that occurs in the first fifteen years. The monitoring shall include regularly spaced (maximum interval of 500 feet) cross-section surveys and a thalweg survey. Additionally, monitoring the original six channel cross-sections established by NHI in 1999 (NHI 2002) shall be conducted to allow for detection of sedimentation farther upstream from the new channel. If monitoring indicates that sedimentation in the Marsh Creek channel is adversely affecting flood flow conveyance, DWR shall coordinate with the Contra Costa County Flood Control and Water Conservation District (CCCFCWCD) to develop a plan to dredge the creek (and beneficially re-use dredged sediments within the Project site) in order to restore flood flow conveyance to pre-sedimentation levels. The triggers for dredging shall be agreed upon with CCCFCWCD in the Agreement between DWR and the District.			
<p>Mitigation 4.1-3: Breach Phase 1, Emerson Parcel, Upon Completion of Canal Encasement Project</p> <p>Mitigations 4.1-3 through 4.1-5, below, replace Mitigation 3.1.2-7 in the 2010 EIR, and are based on the results of the HydroFocus 2013 study. Mitigation measures 4.1-4 and 4.1-5 are intended to be implemented in the sequence in which they are presented, that is, Mitigation 4.1-4 would occur first, and Mitigation 4.1-5 would only be considered if 4.1-4 does not satisfactorily reduce the impact to less than significant. These mitigations would be individually applied to each parcel, and would no longer be necessary on any parcel after the adjacent Canal has been encased.</p> <p>Construction of the Emerson Parcel and Segment 2 of the Canal Encasement project (adjacent to Emerson Parcel) are expected to proceed concurrently. CCWD will not be operating the Canal throughout the encasement construction period (expected to be from Jan 2014 through Dec 2015). Therefore the Canal would not be in service or will be encased during the planned tule cultivation period or breaching on Emerson, so no mitigation would be required. The mitigation measure for Emerson is similar to that in the 2010 EIR: the perimeter levee shall not be breached until the Canal adjacent to the Emerson portion of the Project site is encased. Thus the impact on hydrology and water quality from Project activities on Emerson parcel is anticipated to be less than significant.</p> <p>If, however, Segment 2 of the Canal Encasement project has not begun when tule cultivation is</p>	<p>DWR will ensure that no breaches are constructed until after the CCWD canal, where it is adjacent to the Project, has been encased.</p>	<p>DWR Project Manager</p>	<p>Pre-breach.</p>

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initiated on Emerson, then mitigation measures 4.1-4 and 4.1-5 will apply to the Emerson Parcel.			
<p>Mitigation 4.1-4: Manage and Monitor Water During Tule Cultivation on Gilbert and Burroughs Parcels</p> <p>Phasing. As summarized above, the groundwater seepage analyses (HydroFocus 2013) demonstrated that the tule cultivation phase would have the greatest potential for increased groundwater seepage into the adjacent unlined Canal. To limit the potential seepage impacts to the Canal, tule cultivation shall only occur on one parcel at a time when the adjacent Canal is unencased and operational.</p> <p>Monitoring. If a parcel is flooded for tule cultivation while the Canal is unencased and in service, the Project shall perform continuous monitoring in the Canal to assess potential water quality (salinity) impacts. DWR will establish stage and EC (electrical conductivity, a surrogate for salinity) monitoring stations in the Canal adjacent to the parcel undergoing tule cultivation and just east of the Project site, telemetered to provide real-time measurements to DWR and CCWD.</p> <p>Determine Baseline EC Degradation. DWR and CCWD shall cooperatively examine existing data sets to determine baseline (existing) degradation in Canal EC that occurs within the unlined Canal. This baseline degradation will be determined for each month of the year, or each season of the year, as appropriate.</p> <p>Monitor Project Impacts. Salinity impacts from the restoration will be measured by subtracting the baseline degradation from the difference between real-time measurements of daily average EC at the mouth of the Canal and the EC adjacent to the restoration site.</p> <p>No impact shall be considered to have occurred at any time when the chloride concentration at CCWD's Pump Plant #1 is at or below 40.0 mg/liter (equivalent to EC of 315 μS/cm). During these times monitoring and impact assessment are not required. CCWD will provide DWR with the EC and chloride data from Pump Plant #1 on a regular basis.</p>	DWR, or its contractor, will conduct monitoring, and manage tule cultivation water as specified.	Project Manager	During tule cultivation

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<p>Significant Impacts. Salinity impacts as a result of the Project shall be deemed significant if the increase in daily average EC due to the Project as quantified using the methods described above (Determine Project impacts) exceeds 17.5 $\mu\text{S}/\text{cm}$ or is greater than a 5% increase for more than one day and the measured chloride concentration at CCWD's Pump Plant 1 is greater than 40.0 mg/l. If this threshold is reached, measures identified in Mitigation 4.1-5, below, shall be implemented.</p> <p>Water Management. During the tule cultivation period, the Project shall gradually increase water levels at the site until they reach their maximum elevation (approximately +3.0 ft NGVD29)¹.</p> <p>Periods of No-diversion in the Canal. During CCWD's annual no-diversion period (typically the month of April), the water level on the parcel under tule cultivation shall not exceed +2.0 NGVD29 as measured at a staff gage in the southernmost region of tule cultivation. CCWD will notify DWR at least 14 days in advance of any time that it anticipates that daily average pumping at Pump Plant 1 will be below 50 cfs until CCWD notifies DWR that pumping has been greater than 50 cfs for 5 days.</p>			
<p>Mitigation 4.1-5: Reduce or Eliminate Seepage Effects</p> <p>If monitoring and assessment described in Mitigation 4.1-4 indicates that the Project (either during tule cultivation phase or after breaching) is causing significant water quality impacts that have not been controlled by changes in Project water levels, then DWR shall implement the following measures:</p> <p>(1) Mitigate the impacts to CCWD water quality by paying for an alternate source of water if impacts exceed the following threshold. Where salinity exceeds the greater of 5% or 17.5 $\mu\text{S}/\text{cm}$, over 40 mg/l of water as measured at Pump Plant #1, DWR will pay CCWD \$54 (in 2013 dollars) per day per $\mu\text{S}/\text{cm}$ over the 40 mg/l threshold. The payments will be used to offset CCWD's cost of obtaining and conveying water from alternate sources including but not limited to diversions at CCWD's other</p>	DWR will pay mitigation costs if necessary, and manage tules as specified, and implement barrier solution if necessary.	Project Manger	During tule cultivation and post-breaching

¹ Most of the marsh plain will be at approximately +2 ft NGVD29, and water levels for tule cultivation are expected to be at +2.5 ft NGVD on average. Mean Tide Level at the site is +1.93 ft NGVD, so this analysis will result in a conservative assessment of the potential effects of Project water surface elevations on water quality within the Canal.

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<p>intakes, releases from Los Vaqueros Reservoir, or transfers of water from another purveyor of water.. DWR shall pay this amount to CCWD by January 31st of each year for the previous year's impacts. DWR and CCWD will collaborate to determine the duration and quantification of significant impacts subject to payment.</p> <p>(2) If tules are under cultivation and the significance criteria have been exceeded for a total of 30 or more days per calendar year the Project will be drained, no further water will be applied, and the levees will not be breached until the adjacent Canal is encased.</p> <p>(3) If the levees have been breached and the significance criteria have been exceeded for a total of 30 or more days per calendar year, a soil bentonite cutoff wall or groundwater collection system shall be placed within the south levee or within the setback area between the levee and property line to minimize groundwater seepage into the unlined Canal.</p>			
<p>Mitigation 4.1-6: Groundwater Intrusion Protection– East of Site</p> <p>If deemed necessary by the urban development to the east, the Project shall participate in a joint study to quantify the relative contributions of all possible sources of groundwater intrusion into the parcels east of the restoration site, thereby quantifying the relative role of the Project in contributing to groundwater pumping needs. This study would include the private inholding on the west side of Jersey Island Road. This study shall include field monitoring to measure actual flux into the eastern parcel. If this study determines a significant contribution from the Project that would adversely affect hydrologic conditions east of the Project site that cannot be addressed with existing or planned groundwater management systems, then the technical and economic feasibility of constructing an effective means of reducing flux into the parcels shall be evaluated and a feasible system shall be implemented.</p> <p>Measures that may be considered include a groundwater cutoff wall, toe drain, or financial contribution to the operations and maintenance of groundwater collection systems currently in place or anticipated to be in place with new residential development, at levels commensurate with the documented percent contribution of the Project to increased groundwater levels and</p>	<p>DWR will participate in a joint study if needed, and implement any required corrections</p>	<p>DWR Project Manger</p>	<p>Before, during and after construcion</p>

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volumes to the south requiring abatement. If the monitoring determines that there are impacts to the functioning of the septic system for the private inholding, and the sewer infrastructure for the development to the east has been installed, an additional option would be to connect the inholding to the City sewer system.			
<p>Mitigation 4.1-7: Groundwater Monitoring</p> <p>The 2010 EIR required groundwater monitoring of the lands to the south, west, north, and east of the project site, to determine baseline groundwater levels and quality. Data will be used to determine baseline and post-project groundwater levels, hydraulic gradients, flow directions, and water quality (salinity, major ions, nitrogen species and stable isotopes). The study was to be conducted for at least one year prior to project implementation, and for at least one year after.</p> <p>Groundwater monitoring began in 2011 <u>November 2010</u> and continued for five quarters until December 2012 to establish the baseline conditions. Fifteen existing and nine new wells were monitored, as well as two control wells located over 1 mile from the project site and unlikely to be impacted by project implementation. Wells are located on Ironhouse Sanitary District (west), Jersey Island (north), Hotchkiss Tract (east), and parcels south of the Canal. Wells monitor the shallow (within 30' of the surface) aquifer, which is known to be of higher salinity than local surface water, and which shows changes in the hydraulic gradient as local water management practices change.</p> <p><u>Data will be used to determine baseline and post-project groundwater levels, hydraulic gradients, flow directions, and water quality (salinity, major ions, nitrogen species and stable isotopes).</u></p> <p>Post project monitoring of these wells shall commence after the levee of Emerson parcel is breached.</p>	DWR's contractor, HydroFocus, will continue to conduct groundwater monitoring	DWR Project Manager	After breaching (pre-project baseline has been completed)
3.2 WATER QUALITY			
<p>Mitigation 4.1-8: Develop a Storm Water Pollution Prevention Plan</p> <p>Prior to construction, DWR shall prepare a site-specific SWPPP consistent with the State Water</p>			

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<p>Resources Control Board (SWRCB) and RWQCB requirements to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities. The SWPPP shall identify best management practices (BMP) for controlling soil erosion and the discharge of construction-related contaminants before, during and after construction. BMPs shall be monitored as specified in the SWPPP.</p> <p>The SWPPP prepared for the Project shall include a Hazardous Materials Management Plan (HMMP) for the storage of liquefied petroleum gas and other hazardous materials above threshold quantities required for project operation. The HMMP shall include a hazardous materials inventory, Material Safety Data Sheets for hazardous materials, and contact information; identify requirements for servicing and refueling equipment and employee training; and describe evacuation and emergency response procedures. Fuel and lubricants shall be stored in containers that conform to state and local regulations, and storage areas shall have secondary containment of a size sufficient to contain a spill and prevent spreading. Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., in crew trucks).</p>	DWR, or its contractor, will prepare SWPPP.	DWR Project Manager	Before Construction
<p>Mitigation 4.1-9: Dewatering Restriction</p> <p>Ponded storm or groundwater in construction areas shall not be dewatered directly into adjacent surface waters or to areas where they may flow to surface waters unless authorized by a permit from the CVRWQCB. In the absence of a discharge permit, ponded water (or other water removed for construction purposes), shall be pumped into baker tanks or other receptacles, characterized by water quality analysis, and remediated and/or disposed of appropriately based on results of analysis. If determined to be of suitable quality, some of this water may be used on-site for dust control purposes.</p>	DWR will ensure these instructions are given to the construction contractor, and a DWR construction monitor (or designated contractor) will ensure it is carried out.	DWR Project Manager	Upon approval of final design, and during construction
<p>Mitigation 4.1-10: Contractor Training For Protection of Water Quality</p> <p>All contractors that will be performing demolition, construction, grading, road building, or other work that could cause increased water pollution conditions at the site (e.g., dispersal of contaminated soils, oiling of access roads) will receive training regarding the environmental sensitivity of the site and need to minimize impacts. Contractors will also be trained in implementation of stormwater BMPs for protection of water quality.</p>	DWR (or its contractor) will conduct worker environmental training, and ensure that BMPs are implemented	DWR Project Manager	During construction

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<p>Mitigation 4.1-11: Minimize Potential Pollution Caused By Inundation Of Site</p> <p>Sites shall not be inundated (connected to tidal water sources) until surface soil conditions have been stabilized, all construction debris removed, and all surface soils containing chemicals in excess of the Sediment Screening Criteria for “surface material” have been remediated or removed from the site.</p>	DWR or construction monitor will ensure it is carried out.	DWR Project Manager	
<p>Mitigation 4.1-12: Marsh Creek Water Quality Testing and Evaluate Feasibility of Marsh Creek Relocation Based On Water Quality Considerations</p> <p>If and when the RWQCB establishes criteria for EDCs of concern, the Marsh Creek water-quality testing program described in Impact 4.1-13 shall be expanded to include these compounds. The program shall identify scientifically sound and appropriate water quality thresholds to maintain the ecological integrity of restored habitats. These thresholds will be defined in consultation with CVRWQCB and other resource protection agencies. If the water-quality monitoring program indicates that Marsh Creek contains levels of metals, MeHg, EDCs, coliforms, pesticides, or other pollutants that threaten the ecological health of habitats within the Dutch Slough site, then Mitigation 4.1-13 below will be implemented.</p>	DWR will make decision to incorporate EDCs into water quality monitoring program based upon RWQCB decision, and whether to divert Marsh Creek, based upon results of monitoring	DWR Project Manager	After RWQCB establishes criteria for EDCs
<p>Mitigation 4.1-13: Do Not Relocate Marsh Creek onto Dutch Slough Site</p> <p>If the water-quality monitoring program described in Impact 4.1-13 indicates that water in Marsh Creek has concentrations of metals, EDCs, coliforms, pesticides, or other pollutants that exceed the thresholds defined in Mitigation 4.1-12 above, then Marsh Creek will not be relocated onto the site, and will remain in its existing location.</p>	DWR and its consultants will evaluate data and determine if water quality affects the relocation of Marsh Creek.	DWR Project Manager	Before construction begins on Emerson parcel.
<p>Mitigation 4.1-14: Investigate Water Supply Source and Quality</p> <p>Additional investigation shall be performed to determine the well construction and which aquifer(s) is used for water supply. If the well includes the shallow aquifer, the joint groundwater study described under Mitigation 4.1-6 shall be expanded to evaluate potential water quality impacts to the well. If significant degradation of drinking water quality is projected, impacts shall be mitigated by DWR either (a) paying for additional water quality treatment at the wellhead or (b) paying to connect the private residence to the City water supply.</p>	DWR or its consultants will investigate well depth and respond as directed by this migration measure.	DWR Project Manager	Before construction begins on Burroughs parcel

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3.3 GEOLOGY AND SOILS			
<p>Mitigation 3.3.1-2: Conduct Site Specific Geotechnical Investigations to Identify And Implement Appropriate Remediation Actions (e.g., Subgrade Densification).</p> <p>Site-specific geotechnical investigations shall be conducted to determine most appropriate remediation actions for new levees and structures and upgrades or repairs to existing levees and structures. Potential mitigation measures include dynamic deep compaction to densify subgrade soils to reduce impact to less than significant.</p>	DWR or its contractor	DWR Project Manager	Pre-construction
<p>Mitigation 3.3.1-3: Conduct Site-Specific Geotechnical Investigations To Identify And Implement Appropriate Remediation Actions (e.g., Subgrade Densification).</p> <p>Site-specific geotechnical investigations shall be conducted at Dutch Slough to characterization site conditions. Pre-design and design-level geotechnical field investigations (soil borings, Cone Penetration Tests), laboratory analyses, groundwater analyses would better enable assessing site conditions and constructability of proposed levees and structures on the Dutch Slough Restoration Project site and the City Community Park. These investigations would provide a basis for appropriate Site design for any new and/or improvements to exiting levees and structures on the Dutch Slough Restoration Project site and the City Community Park. Potential methods include treatment such as deep dynamic compaction to densify subgrade soils. These investigations shall supplement recent work presented in Kleinfelder (2006).</p>	DWR or its contractor	DWR Project Manager	Pre-construction
<p>Mitigation 3.3.1-5: Implementing Erosion Control BMPs During Construction</p> <p>Temporary erosion control measures (e.g., silt fences, straw bales, detention basins, check dams, sandbag dikes, geo-fabric, and ground cover) shall be implemented during construction per required BMPs and SWPPP.</p>	DWR will ensure that all BMPS and SWPPP actions are done	DWR Project Manager	During construction
<p>Mitigation 3.3.1-6: Implement Design, Remediation, And Construction Measures</p> <p>Pre-design and design-level geotechnical field investigations (soil borings, Cone Penetration Tests) and laboratory analyses shall be conducted to determine soil characteristic and strength to enable an assessment of site conditions and constructability. Field investigations and laboratory results shall be included in geotechnical reports and form the basis for appropriate site design. Potential methods to address liquefaction include deep dynamic compaction to densify subgrade</p>	DWR or its contractor will conduct oversight of construction activities	DWR Project Manager	During design phase

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<p>soils. A geotechnical engineer shall monitor and provide oversight of field construction activities including excavation, fill placement, and materials removed from and deposited at the site.</p> <p>As recommended in the Hultgren-Tillis (2005) Levee and Seepage report, the new proposed levee along the eastern boundary of the Burroughs parcel shall be constructed of lean clay. Where necessary, areas of peat would need to be excavated from beneath the proposed levee to expose underlying sand or stiff clay soils. Levee design shall include a wide berm to maintain stability and aid in controlling levee settlement induced by lateral creep. To minimize potential for differential settlement and risk of internal piping (seepage) a core should be installed into levees segments as needed.</p> <p>If Marsh Creek is relocated, site-specific soils investigations shall be conducted at the selected diversion point, and any improvements identified implemented as necessary.</p>	DWR or its construction monitor will investigate soils and ensure lean clay is used to construct levee	DWR Project Manager	<p>During construction</p> <p>Prior to relocation of Marsh Creek</p>
<p>Mitigation 3.3.1-7: Remove and/or Remediate Unstable or Expansive Soils</p> <p>Design level geotechnical investigations shall be conducted to assess presence of expansive soils and identify most appropriate remediation measures for the restoration site and the proposed community park. In the event that unstable or expansive geologic units or soils are encountered during the geotechnical investigations and are deemed unsuitable for construction, remedial measures shall be implemented, including removing soils and backfill with engineered fill or imported offsite material, re-grading with non-expansive soils, soil lime treatment, or otherwise treating soils to decrease shrink/swell potential and otherwise satisfy the required specifications for compaction and shear strength. All structures shall adhere to building codes; this would reduce risk to life or property and reduce impacts to less than significant levels.</p>	DWR or its contractor	DWR Project Manager	Pre-construction
<p>Mitigation 3.3.1-8.1: Levee Design and Maintenance</p> <p>Levees shall include vegetation cover and biotechnical and/or physical buffering and feature gently graded slopes. Levees planted with marsh and riparian vegetation in and feature flatter slopes provide a wave-damping wetland bench will dissipate wave energy and minimize erosion as well as support habitat objectives. Periodic levee inspections and maintenance shall be specified as part of the project design. Anticipated levee maintenance activities include levee</p>	<p>DWR or its contractor will inspect and maintain levees.</p> <p>DWR will ensure levee design, construction, and maintenance</p>	DWR Project Manager	During design and construction phases, and post-

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inspections and patrolling, grading, engineering, vegetation and rodent control, debris removal, drainage cleaning, seepage control, underwater surveys, and slope protection.	follow these guidelines		construction
<p>Mitigation 3.3.1-8.2: Repair Unintended Levee Breaches</p> <p>To prevent channel erosion and potential damage to the levee systems, unintended levee breaches at Dutch Slough that are not consistent with the restoration option shall be repaired by the project sponsors.</p>	DWR will repair unintended breaches that are not consistent with Project objectives	DWR Project Manager	Post-breaching
<p>Mitigation 3.3.1-8.3: Maintain Levee Along Dutch Slough</p> <p>Levees along Dutch Slough shall be maintained to prevent increase in wind-wave fetch that could lead to greater erosion and scour of Jersey Island levees.</p>	DWR will maintain levee along Dutch Slough	DWR Project Manager	Post-breaching
<p>Mitigation 3.3.1-8.4: Jersey Island Road Levee Shall Account for Increased Wave Run Up</p> <p>Due to greater fetch and potential wave run-up due to greater surface water area post-breach, the design height of the new Jersey Island Road levee shall be adequate to prevent account for increased water heights due to wave run-up.</p>	DWR will ensure that the height of the new Jersey Island Road is adequate	DWR Project Manager	During final design approval
<p>Mitigation 3.3.1-9: Appropriate Levee Design, Construction, Monitoring and Maintenance</p> <p>The project design shall comply with HTA and Kleinfelder design criteria and geotechnical investigations and shall incorporate consultation with the USACE, Reclamation District 799 and Reclamation District 830, and appropriate design and construction. The seepage potential of the selected Open Water Management option shall be evaluated as part of geotechnical investigations and consultations.</p>	DWR or its contractor will coordinate levee design and geotech investigations with USACE and neighboring RDs	DWR Project Manager	During final design approval
3.4 TERRESTRIAL AND WETLAND BIOLOGICAL RESOURCES			
<p>Mitigation 4.2-1: Avoid And Minimize Effects Of Loss Of Irrigated Pasture And Ruderal Habitats Through Project Timing And Phasing</p> <p>Effects on resident wildlife within irrigated pasture shall be minimized through Project timing and phasing. Specifically:</p> <ul style="list-style-type: none"> If earthmoving will be done the breeding/nesting season (February to August), vegetation shall be removed prior to the breeding season to discourage nesting and denning. 	DWR will ensure that project design includes measures to protect breeding wildlife and to phase construction to prevent simultaneous	DWR Project Manager	During final design approval and during construction

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<ul style="list-style-type: none"> The Project shall be phased so that impacts to terrestrial habitats do not occur throughout the Project area all in the same year. 	impacts to all habitat areas		
<p>Mitigation 4.2-2: Minimize Disturbance (Direct And Indirect) Associated With Maintenance Of Exterior Levee</p> <p>In planning the project, rock placement on portions of levee with high habitat value shall be minimized. When rock placement in such areas is necessary, work will occur in the smallest possible area and construction shall be timed to avoid nesting periods of sensitive species.</p>	DWR will ensure design incorporates these features, and that they are included in construction	DWR Project Manager	During final design approval and during construction
<p>Mitigation 4.2-3: Rock Slope Protection Placement and Backfill and Riparian Planting</p> <p>Where feasible, both exterior and interior levee slopes shall be planted with native grasses and trees to increase available wildlife habitat. In areas where riparian vegetation shall be planted in riprap (i.e., the Emerson perimeter levee), rocks above the high tide line shall be backfilled with topsoil to provide a substrate for revegetation efforts, and increase survival of plants. Sand or gravel may be used to fill voids below the high tide line to reduce downward soil movement and water turbidity.</p>	DWR will ensure that exterior levee design and construction meet these requirements	DWR Project Manager	During design and construction
<p>Mitigation 4.2-4: Minimize, Avoid, And Compensate For Impacts Common To All special-status Plants</p> <p>Mitigation for special status plant species is addressed collectively for all species, with modifications noted for individual species.</p> <p>Significant impacts to special-status plant species present or likely to be present onsite shall be minimized, avoided, and contingently compensated by complying with the following:</p> <ul style="list-style-type: none"> Pre-construction surveys: Potential habitat for special-status plant species shall be surveyed in appropriate seasons for optimal species-specific detection prior to project excavation/dredging, fill, drainage, or flooding activities associated with project construction. Survey methods shall comply with CNPS/CDFG rare plant survey protocols, and shall be performed by qualified field botanists. Surveys shall be modified to include detection of juvenile (pre-flowering) colonies of perennial species when 	DWR or its biological contractors.	DWR Project Manager	Initial surveys have been completed. Additional surveys will be conducted prior to construction

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<p>necessary. Any populations of special status plant species that are detected shall be mapped.</p> <ul style="list-style-type: none"> • If special-status plant populations are detected where construction would have unavoidable impacts, a compensatory mitigation plan shall be prepared and implemented in coordination with USFWS or DFG. Such plans may include salvage, propagation, on-site reintroduction in restored habitats, and monitoring. • If USFWS or DFG require propagation or transplantation, scientifically sound genetic management guidelines and protocols for rare plants shall be applied to propagation and transplant plans, possibly including the following: <ul style="list-style-type: none"> • maintain some reserve clonal stock of perennial special-status plant populations during the monitoring period to offset the risk of failure in establishing populations in the wild, • set aside surplus reserve seed of annual special-status plants from impacted populations • conduct long-term monitoring to determine the fate of managed special-status plant populations. • No special-status plant species shall be introduced to the site beyond their known historic geographic range unless such introduction is recommended in a final recovery plan or conservation plan prepared and adopted by the USFWS or the CDFG, in formal consultation with the USFWS. 	DWR will consult with DFG and/or USFWS.		Pre-construction
<p>Mitigation 4.2-5: Minimization and Compensation for Potential Impacts to Special-Status Bat Species</p> <ul style="list-style-type: none"> • A qualified biologist shall conduct a habitat assessment for bats at work sites where culverts, structures and/or trees would be removed or otherwise disturbed for a period of more than two hours. The habitat assessment shall include a visual inspection of features within 50 feet of the work area for potential roosting features (bats need not be present) no more than 48 hours prior to disturbance of such features. Habitat features found during the survey shall be flagged or marked. 	DWR will ensure that any occupied trees or structures are removed only when bats are	DWR Project Manager	Pre-construction

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
<ul style="list-style-type: none"> If any habitat features will be altered or disturbed by Project activities, a phased disturbance strategy shall be employed. Specifically, non-habitat trees or structural features shall be removed one day prior to removal of habitat features. Roosting features shall not be directly disturbed (e.g. shaken, prodded). 	absent or least likely to be affected		Pre-construction or demolition
<p>Mitigation 4.2-6: Minimization, Avoidance, and Tree Replacement for Potential Impacts to Cooper's Hawk</p> <p>Nesting trees are the most important habitat component for Cooper's hawks in the project area. Focused annual surveys shall be conducted, beginning in 2008, to estimate the level of use and local population size of Cooper's hawks (and other nesting birds) prior to commencement of any construction activity that would affect nesting Cooper's hawks. Focused surveys shall be used to prioritize the sequence of habitat retention and disturbance during project construction phasing.</p> <p>If nesting Cooper's hawks are observed on site during the pre-construction surveys, DFG will be consulted regarding appropriate avoidance and mitigation measures to meet the specific needs of the nesting birds. Measures may include establishing a buffer zone around occupied trees, adapting restoration plans or timing to preserve nesting trees, or delay of construction disturbance until after young have fledged.</p> <p>Short-term impacts cannot be mitigated because existing tree habitats lie mostly below sea level. Long-term impacts shall be mitigated by riparian woodland restoration and enhancement design of the restoration project. Native coast live oak woodland groves, and individual oaks shall be included in terrestrial habitat restoration to enhance efficacy of mitigation for raptor habitat. Mature existing trees shall be retained in the community park, including decadent trees and non-invasive non-native ornamental/shade/windbreak trees.</p> <p>No trees will be removed during the nesting season. In addition, implementation of Mitigation measures 3.4.1-1 and 3.4.1-11 would minimize impacts to Cooper's hawks.</p>	DWR will ensure the project is designed and constructed with minimal impacts to Cooper's hawks nesting trees. If necessary, DWR will consult with DFG.	DWR Project Manager	<p>Pre-construction</p> <p>Pre-construction</p>
<p>Mitigation 4.2-7: Conduct Swainson's Hawk Nest Surveys and Establish Buffers around Active Nests</p> <ul style="list-style-type: none"> Preconstruction Surveys. If work will occur during the nesting season (March 1 to July 31), a 	DWR will incorporate tree protection in its design; project construction	DWR Project Manager	Current and on-going

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
<p>focused survey for active nests shall be conducted by a qualified biologist 5 days prior to construction. If a lapse in project-related work of 15 days or longer occurs, another focused survey shall be performed and the results sent to CDFW prior to resuming work. The biologist shall conduct a second monitoring of the potential nest trees and Swainson's hawk nests 72 hours prior to construction. Results of each survey/monitoring effort shall be documented and submitted to CDFW.</p> <p>Surveys shall be conducted in proposed work areas, staging and storage areas, haul routes, and stockpile and borrow areas, including the ISD parcel, and shall extend ¼-mile beyond the limits of work. The surveys shall be conducted at the appropriate times of day, during appropriate nesting times, shall be of sufficient duration to observe movement patterns, and shall concentrate on areas of suitable habitat. Surveys shall be conducted in accordance with CDFW guidelines, and Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000).</p> <ul style="list-style-type: none"> Active Nests. Construction activities within ¼-mile of an active nest should be limited to the greatest extent possible from egg-laying to post-hatching. If construction must occur in that time frame, construction should be initiated prior to egg-laying to allow time for hawks to acclimate to the disturbance before eggs are laid. Levee breaches shall be constructed after local Swainson's hawks have fledged their young to the extent feasible, and preferably after the birds have migrated south for the winter. <p>Where construction cannot be sufficiently limited to avoid disturbing Swainson's hawks during nesting, 5 days and 3 days prior to the initiation of construction at any site where a nest is within ¼-mile of construction, a qualified biologist will observe the subject nest(s) for at least 1 hour. Nest status shall be determined and normal nesting behaviors observed. The results of preconstruction monitoring shall be reported to CDFW within 24 hours of each survey.</p> <ul style="list-style-type: none"> No Contact. Physical contact with an active nest tree shall be prohibited from the time of egg-laying to fledging, unless CDFW consents to the contact. Construction personnel outside of vehicles shall be restricted to a distance greater than 660 feet from the nest tree unless 	<p>supervisors will be informed of tree protection measures.</p>		

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
<p>construction activities require them to be closer. If personnel must come within 82 feet of an active nest tree for more than 15 minutes while adults are brooding, the nesting adults shall be monitored for stressed behavior. If stressed behavior is identified, personnel shall be removed until the behavior normalizes. Similar procedures shall be applied if personnel must come within 164 feet of an active nest for longer than 1 hour.</p> <ul style="list-style-type: none"> • Late Construction. If construction will occur within ¼-mile of an active nest site between March 15 and July 31, the following additional measures shall be implemented: <ul style="list-style-type: none"> • Staging areas for equipment, materials, and work personnel shall located ¼-mile away from the active nest site. These areas shall be flagged and identified to all work personnel during employee orientation. • If construction occurs within 328 feet of an active nest, no construction shall occur prior to 8:00 AM, and shall be discontinued by 5:00 PM each day. • A qualified biologist shall check on the nest site daily during project construction. • If a nest with eggs or young fledglings is abandoned during Project activities, DWR shall notify CDFW and initiate action to salvage any abandoned eggs and return the young to the wild. If the young have already hatched, they shall be retrieved and returned to the wild using methods acceptable to CDFW. Persons handling eggs and/or young birds shall have in their possession the appropriate scientific collecting permits from CDFW. 			
<p>Mitigation 4.2-8: Plant Replacement Trees</p> <p>In addition to the 52 potential nest trees (i.e., trees greater than 30 feet tall and with lateral branches) that will be preserved on site, a total of 60 replacement nest trees (fast-growing trees, such as Fremont cottonwood) shall be planted along the northern edge of the Burroughs parcel during the first year of Project implementation, which will result in a replacement ratio of 3:1 (replacement nest trees:nest trees removed). All replacement nest trees shall be caged and irrigated if needed, and monitored for three years after planting. Any trees that die within this period shall be replaced. Additionally, about 6 acres of riparian forest habitat suitable for</p>	<p>DWR or its contractor will plant approximately 100 trees on North end of Burroughs</p>	<p>DWR Project Manager</p>	<p>During fall/winter 2014 or 2015</p>

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
Swainson's hawk nesting shall be planted on habitat berms throughout the restoration area.			
<p>Mitigation 4.2-9: Minimize and Compensate for Potential Impacts to Burrowing Owls</p> <p>Annual surveys will be conducted starting in 2008 to determine foraging and nesting status, and population size. . In addition, surveys will be conducted within 30 days of commencement of earth-moving activities, or other construction activities, such as placement of fill. Pre-construction surveys must be repeated if more than 30 days pass between survey dates and construction activities.</p> <p>Presence or sign of burrowing owl and all potentially occupied burrows will be recorded and monitored according to DFG guidelines. If burrowing owls are not detected by sign or direct observation, construction may proceed. If burrowing owls are present during surveys conducted between February 1 and August 31, grading will not be allowed within 250 feet of any burrow, unless approved by DFG.</p> <p>A compensatory mitigation plan shall be prepared and implemented if burrowing owls are confirmed to occur on site. Compensatory mitigation shall comply with guidelines accepted by DFG. Mitigation may include placement of exclusion doors on occupied burrows (passive relocation), establishment of artificial burrows on or near the project site, or monitoring of burrows.</p> <p>If burrowing owls are detected on the project site, foraging habitat with natural or artificial burrows will be acquired and permanently protected to compensate for the habitat loss. The protected lands shall be occupied burrowing owl habitat, or created habitat, in an area acceptable to DFG. First priority would be to preserve habitat on the project site; second priority would be to off-site locations near (within approximately a 5 mile radius of) the project site; third priority would be to off-site location further from the project site that is acceptable to DFG. Habitat will be acquired, permanently protected, and enhanced through management, for the benefit of the burrowing owl. If lands are purchased and managed, a Mitigation and Monitoring Plan describing the mitigation and monitoring requirements and performance standards will be prepared. Alternatively, the required mitigation can be met by purchase of credits in an accepted mitigation bank, in-lieu fee program, or approved Habitat Conservation Plan</p>	<p>DWR or its biological consultants will conduct surveys.</p> <p>If burrowing owls are confirmed, DWR will mitigate as determined in consultation with DFG.</p>	<p>DWR Project Manager</p>	<p>Current and on-going</p> <p>Pre-construction</p> <p>Pre-construction</p>

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
If acceptable to DFG, Mitigation 3.4.1-8.1 (purchase of off-site mitigation area primarily for Swainson's hawk) may also be applied to this impact to compensate for significant loss of suitable habitat because the degree to which restored grasslands on the project site (which, under the influence of higher groundwater elevations adjacent to restored tidal marsh, may naturally develop lowland grassland characteristics less suited to burrowing owl) compensate for habitat losses is doubtful.			
<p>Mitigation 4.2-10: Mitigation for Potential Impacts to Nesting Birds</p> <ul style="list-style-type: none"> • If work is to be completed during the nesting season of special-status bird species (generally February through August), a focused survey for active nests of such birds shall be conducted by a qualified biologist within 5 days prior of construction. If a lapse in Project related work of 15 days or longer occurs, another focused survey shall be performed and the results sent to CDFW prior to resuming work. • Surveys shall be conducted in proposed work areas, including staging and storage areas, haul routes, and stockpile and borrow areas. For passerines and small raptors such as accipiters, surveys shall be conducted within a 250-foot radius surrounding work areas. For larger raptors such as buteos, the survey area shall be within ¼ mile beyond limits of work. Surveys shall be conducted at the appropriate times of day, during appropriate nesting times and shall concentrate on areas of suitable habitat. • CDFW shall be contacted prior to commencing Project activities if active nests are found, to determine buffer and monitoring requirements. • Nesting seasons shall be defined as February 15 to July 31 for most raptors, with the exception of February 1 to August 31 for burrowing owl; and March 15 to July 31 for smaller birds, such as passerines. 	DWR or its consulting biologists will conduct surveys and ensure that construction timing and methods do not disturb nesting birds.	DWR Project Manager	Pre-construction and during construction
<p>Mitigation 4.2-11: Mitigation for Potential Impacts to Yellow-Breasted Chats and other Songbirds</p> <p>Mitigation 3.4.1-3 applies to this impact. Annual bird surveys will be conducted, beginning in 2008, which will assess use of the site by yellow-breasted chats and other special status marsh songbirds. If those surveys have documented nesting by any special status marsh songbirds prior</p>	DWR will ensure that construction timing and	DWR Project	Current and ongoing

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
to construction, applicants shall conduct additional surveys for yellow-breasted chats and avoid disturbance of high-use habitats during the nesting season. This would reduce impacts to chats and other riparian songbirds to less than significant levels.	methods do not disturb nesting birds.	Manager	
<p>Mitigation 4.2-12: Mitigation for Potential Impacts to California Black Rail</p> <p>To avoid impacts to California black rails, activities within or adjacent to marsh areas shall be avoided during the breeding season from February 1 through August 31 each year unless surveys are conducted to determine California black rail presence or absence, locations and territories that can be avoided, or the area is determined to be unsuitable California black rail breeding habitat by a qualified biologist. If breeding California black rails are detected within 500 feet of proposed construction sites, CDFW shall be contacted regarding appropriate action to avoid disturbance or other impacts to California black rails. All survey methods and results shall be submitted to CDFW for review and written approval.</p>	<p>DWR will conduct surveys and consult with DFG to minimize or avoid impacts</p> <p>DWR will manage water to discourage habitat use by black rails prior to habitat inundation or ground disturbance</p>	DWR Project Manager	<p>Pre-construction</p> <p>Pre-construction</p>
<p>Mitigation 4.2-13: Mitigation for Potential Impacts to California Tiger Salamanders, California red-legged frog, western pond turtle, and silvery legless lizard</p> <p>If habitat for California tiger salamander, California red-legged frog, western pond turtle, or silvery legless lizard exist at a given work area and the species is known to exist on or within a reasonable dispersal distance, a qualified biologist shall conduct a reconnaissance level survey within 48 hours of the commencement of Project activities. A reasonable dispersal distance is considered the distance from a particular location, such as a California Natural Diversity Database (CNDDDB) occurrence, that a given species would be expected to disperse for mating, breeding, foraging, nesting, or other activities. At work areas where heavy equipment shall be used, upland access routes and staging areas should also be surveyed if habitat for special-status species is present. All survey methods and results shall be submitted to CDFW for review.</p> <p>If special-status species are found during surveys or construction and could be adversely impacted by work activities, work shall be placed on hold until further notice from CDFW.</p>	DWR will conduct surveys	DWR Project Manager	Pre-construction
<p>Mitigation 4.2-14: Mitigation for Potential Impacts to Giant Garter Snakes</p> <p>The following measures shall be implemented to avoid, minimize, and mitigate potential adverse impacts giant garter snake:</p>	DWR will consult with USFWS to determine whether		

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
<ul style="list-style-type: none"> Worker awareness training for construction personnel shall be conducted by a qualified biologist approved by USFWS and CDFW before commencement of construction activities and as needed when new personnel begin work on the Project. The program shall inform all construction personnel about the life history and status of the snake, the need to avoid damaging suitable habitat or causing snake mortality, measures to avoid and minimize impacts on the species and its habitats, the conditions of relevant regulatory permits, and the possible penalties for not complying with these requirements. Unless authorized by USFWS, construction and other ground-disturbing activities within 200 feet of suitable aquatic habitat for the giant garter snake shall not commence before May 1, with initial ground disturbance expected to correspond with the snake's active season (as feasible in combination with minimizing disturbance of nesting Swainson's hawks). Initial ground disturbance shall be completed by October 1. Some components of the Project may occur prior to the beginning of the defined giant garter snake active season. Site preparation activities, such as utility relocations, removal of residential or agricultural structures, and removal and planting of trees, shall be conducted before April 15, typically farther than 200 feet from aquatic habitat for giant garter snakes or in unsuitable wintering areas. Some components of the Project may occur beyond the end of the defined giant garter snake active season and up to November 30 of all construction years. Some of these activities, such as demobilization and site restoration, may extend through December of all years. DWR also acknowledges that unanticipated construction delays could occur and result in the need to extend construction work into the giant garter snake inactive season. Should construction need to occur in snake habitat outside of the active season, DWR shall notify USACE, USFWS, and CDFW by August 15 to reinitiate consultation. Further, DWR recognizes that it may be necessary to implement additional avoidance and minimization measures for Project activities that occur beyond October 1, such as dewatering of aquatic habitat, continuous disturbance in construction areas for the last two weeks in September, installation of exclusionary fencing prior to October 1, or other measures to minimize the potential for giant garter snakes in construction areas. 	<p>or how surveys are to be performed, conduct any necessary surveys, and if species is detected, develop restoration and relocation plans</p>	DWR Project Manager	Pre-construction

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
<ul style="list-style-type: none"> Any aquatic habitat for the snake that is dewatered shall remain dry for at least 15 consecutive days after April 15 and before excavating or filling of the dewatered habitat. If complete dewatering is not possible, potential snake prey (e.g., fish and tadpoles) shall be removed so that snakes and other wildlife are not attracted to the construction area. Within 48 hours before the commencement of ground-disturbing activities, areas within 200 feet of suitable aquatic habitat for giant garter snake shall be surveyed for giant garter snakes by a qualified biologist. The biologist will provide USFWS with written documentation of the monitoring efforts within 48 hours after the survey is completed. The area shall be re-inspected by a qualified biologist whenever a lapse in construction activity of 2 weeks or greater has occurred. A qualified biologist shall be present on-site during initial ground disturbance activities. The biologist shall be available throughout the construction period and shall conduct weekly monitoring visits to ensure avoidance and minimization measures are being properly implemented. Before the commencement of construction activities, high-visibility fencing shall be erected to protect suitable giant garter snake habitat that is located adjacent to construction areas, but can be avoided, from encroachment of personnel and equipment. The fencing shall be removed only when the construction within a given area is completed. This fencing shall conform to the specifications detailed in the measure below. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material shall be used for erosion control and other purposes at the Project site to ensure that giant garter snakes are not trapped or become entangled by the erosion control material. Coconut coir matting is an acceptable erosion control material. No plastic mono-filament matting shall be used for erosion control. The edge of the material shall be buried in the ground to prevent giant garter snakes from crawling underneath the material. The number of access routes, the number and size of staging areas, and the total area of the proposed Project activity shall be limited to the minimum necessary. Routes and boundaries shall be clearly demarcated. Movement of heavy equipment to and from the Project site shall be restricted to established roadways and designated staging areas to minimize habitat disturbance. Project-related vehicles shall observe a 20-mile-per-hour speed limit within construction areas, except on county roads and 			

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
<p>on state and federal highways.</p> <ul style="list-style-type: none"> All giant garter snakes encountered shall not be harassed, harmed, or killed and shall be allowed to leave the construction area on their own volition. If any snake is observed retreating into an underground burrow within the Project limits, no construction shall be allowed within a 50-foot radius of the burrow. A 50-foot radius non-disturbance buffer zone shall be established until a qualified biologist can make a determination that the snake is or is not a giant garter snake. If a qualified biologist determines that a giant garter snake has retreated into an underground burrow within the Project limits, and the area of the burrow cannot be avoided by the Project, then under the approval, supervision, and direction of USFWS and a qualified biologist, the burrow shall be excavated to allow personnel with appropriate authority to capture and handle the giant garter snake to relocate the giant garter snake outside of the area. The biologist shall notify the USFWS immediately if any listed species are found on-site, and will submit a report, including date(s), location(s), habitat description, and any corrective measures taken to protect the species found. Stockpiling of construction materials, including portable equipment and supplies, shall be restricted to designated staging areas. To eliminate an attraction to predators of the giant garter snake, all food-related trash items, such as wrappers, cans, bottles, and food scraps, will be disposed of in closed containers. 			
<p>Mitigation 4.2-15: Mitigation for Potential Impacts to Protected Trees</p> <p>Once design plans for the Dutch Slough Restoration and the City Park are finalized, an assessment will be made to determine which trees will be removed or killed by the projects. A certified arborist will be hired to examine the trees and determine whether they are protected by the tree ordinance. All protected trees will be mitigated for as outlined in the ordinance.</p> <p>DWR will consult with the City of Oakley when determining the number and species of trees to be planted on the Dutch Slough project site.</p>	DWR or its contractor will assess existing trees, hire arborist, and consult with City of Oakley.	DWR Project Manager	Pre-construction
3.5 BIOLOGICAL RESOURCES – AQUATIC RESOURCES			
Mitigation 4.2-16: Develop a Storm Water Pollution Prevention Plan (SWPPP) Through the			

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
<p>RWQCB</p> <p>Prior to construction, DWR shall prepare a site-specific SWPPP consistent with the State Water Resources Control Board (SWRCB) and RWQCB requirements to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities. The SWPPP shall identify best management practices (BMP) for controlling soil erosion and the discharge of construction-related contaminants before, during and after construction. BMPs shall be monitored as specified in the SWPPP.</p> <p>The SWPPP prepared for the Project will include a HMMP for the storage of liquefied petroleum gas and other hazardous materials above threshold quantities required for project operation. The HMMP will include a hazardous materials inventory, Material Safety Data Sheets for hazardous materials, and contact information; identify requirements for servicing and refueling equipment and employee training; and describe evacuation and emergency response procedures. Fuel and lubricants will be stored in containers that conform to state and local regulations, and storage areas will have secondary containment of a size sufficient to contain a spill and prevent spreading. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., in crew trucks).</p>	DWR or its construction contractor will ensure project design includes an SWPPP, and that its recommendations are followed.	DWR Project Manager	During final design approval and during construction
<p>Mitigation 4.2-17: In Water Construction Windows</p> <p>With the exception of the construction of the temporary crossing of Marsh Creek, all in-water work shall be restricted to a work-window from August 1 through October 31, which is timed to occur when sensitive fish species or life stages are not present or are least susceptible to disturbance. The temporary crossing of Marsh Creek shall be removed by October 15 each year, or earlier if required by the Contra Costa County Flood Control and Water Conservation District.</p> <p>In addition, all in-water work shall be conducted, to the extent possible, during the lowest tide possible (preferably the spring low tides). In-water work occurring in shallow waterways (approximately 4 feet deep or less) should be conducted when water is at its lowest level, and presumably the chance of fish being present is low.</p>	DWR, or its construction monitor, will assure that construction in areas where material may enter a slough is limited to the allowed in-water work windows	DWR Project Manager	During construction
<p>Mitigation 4.2-18: Implement Fish Rescue Plan Inside Cofferdams</p> <p>DWR shall prepare a Fish Rescue Plan for review and approval by CDFW, USFWS, and NMFS.</p>	DWR, or its consultant, will prepare the plan	DWR Project Manager	Plan to be prepared pre-construction;

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
(As of February 2013, a draft Fish Rescue Plan has been prepared and is undergoing agency review.) The Fish Rescue Plan shall describe the methods that shall be used to capture and relocate fishes from in-water work areas prior to and during dewatering, and shall include establishment of seine and block nets on an outgoing tide to herd fish downstream and out of the work area prior to placement of the downstream cofferdam. The fish rescue effort shall be implemented by a qualified biologist before and during the dewatering activities and shall involve capture and return of those fishes not excluded from the dewatered area by the seines or nets to suitable habitat downstream of the work area.	and conduct fish rescue operations.		rescue operations to be conducted as needed.
<p>Mitigation 4.2-19: Pile Driving Underwater Sound Pressure Measures</p> <p>The following measures shall be implemented to avoid and minimize potential adverse effects that could otherwise result from in-water pile-driving activities:</p> <ul style="list-style-type: none"> • The contractor shall develop a plan for in-water pile-driving activities to minimize impacts on fishes. The plan will be developed to allow sufficient time in the schedule for coordination with regulatory agencies. Measures shall be implemented to minimize underwater sound pressure to levels below thresholds for peak pressure and accumulated SEL. Threshold levels established by USFWS and NMFS that will not be exceeded are: <ul style="list-style-type: none"> - Peak pressure = 206 dB - Accumulated SEL = 183 dB • Underwater sound monitoring shall be performed during pile-driving activities. A qualified biologist/natural resource specialist shall be present during such work to monitor construction activities and compliance with terms and conditions of permits. • The contractor shall perform any in-water construction activities during identified in-water work window (with the exception of the construction of the temporary Marsh Creek crossing). When in-water work is conducted, the qualified fisheries biologist shall be present to monitor construction activities and ensure compliance with mitigation requirements and the permit terms and conditions. • Sheet piles shall be driven by vibratory or nonimpact methods (hydraulic) that result in 			

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
<p>sound pressures below threshold levels to the extent feasible.</p> <ul style="list-style-type: none"> Hammers shall be used only during daylight hours and initially shall be used at low energy levels and reduced impact frequency. Applied energy and frequency shall be gradually increased until necessary full force and frequency are achieved. <p>The use of impact hammer cushion blocks may be required by USFWS if underwater.</p>			
<p>Mitigation 4.2-20: Release On-Site Water Gradually</p> <p>Any water that may need to be released from the restoration area shall be tested for DO prior to release to the surrounding water body. If the DO of the release water is higher than or up to 0.5 mg/L below surrounding water DO levels, the water may be released without restriction. If the DO of the release water is lower than 0.5 mg/L below surrounding water DO levels, the water shall be released on low tides, to facilitate water movement out of the sloughs, and release shall stop one (1) hour before the rising tide.</p>	DWR, or its construction monitor, will test water DO before release	DWR Project Manager	During construction and tule management.
<p>Mitigation 4.2-21: Limit Operation During Migration Periods of Sensitive Species</p> <p>Water level management activities shall be limited during migration periods for sensitive species such as salmon to reduce the potential impacts upon these species.</p>	DWR, or its contractor, will manage water to protect sensitive fish species	DWR Project Manager	After open water management is initiated
<p>Mitigation 4.2-23: Install Fish Screens on Pumps and Culverts</p> <p>DWR shall install fish screens designed to meet criteria developed by NMFS and CDFW (and selected by USFWS) on any pump intakes that could be used temporarily for pre-breach water management activities, pumping out temporary construction areas, and on the gated culvert used for water management in the managed non-tidal marsh area on the Gilbert parcel. Screens shall be in place at all times when pumps or culverts are in use, and to the greatest extent practicable, at all times regardless of operational status. Screen mesh size shall be 1.75 millimeters (mm) (0.0689 inch) and the design approach velocity shall be less than 0.2 feet per second. Screens shall be cleaned as frequently as necessary to maintain the required approach velocity.</p>	DWR, or its contractor, will include screens in design and will install	DWR Project Manager	During construction
<p>Mitigation 4.2-24: Enhance Tidal Exchange</p> <p>In the event that non-native vegetation and fish predators become dominant in the tidal marshes of the Project site, measures to facilitate greater tidal exchange to the marsh and promote habitat</p>	DWR will assess monitoring data and if necessary,	DWR Project Manager	Post-breach

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
favorable to the establishment of native SAV and native fish, such as additional breaches, will be undertaken. The corrective actions taken will be based upon the feasibility, hydrologic benefits, and ecological values of the actions.	construct additional breaches or take other action to increase tidal exchange		
3.6 AIR QUALITY			
<p>Mitigation 3.6.1-2: Enhanced Dust-Control Program</p> <p>Because the proposed project is more than 4.0 acres, implementation of an enhanced dust control program during construction is recommended to achieve a less-than-significant dust nuisance impact. Suggested PM-10 mitigation measures are:</p> <p>Basic Control Measures (Required); the following control measures will be implemented:</p> <ul style="list-style-type: none"> • Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials or require all truck to maintain at least 2 feet of freeboard. • Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets. <p>Enhanced Control Measures (Recommended because large scale of grading);</p> <p>The following additional measures are recommended to be implemented at this construction site:</p> <ul style="list-style-type: none"> • Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.). • Limit traffic speeds on unpaved surfaces to 15 mph. • Install sandbags or other erosion control measures to prevent silt runoff to public 	DWR, or its construction monitor will assure that all BCMs are followed	DWR Project Manager	During construction

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
roadways. • Replant vegetation in disturbed areas as quickly as possible.			
Mitigation 3.6.1-3.1: Best Management Practices to Reduce Greenhouse Gas Emissions Construction crews will be required to follow BMPs for reduction of emissions, such as limits on idling, keeping engines in tune, and possibly retrofits to increase fuel efficiency. These BMPs will be included in worker environmental education sessions. All measures in the CARB "Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measures" will also be adhered to if the measures have been instituted by the time construction starts.	DWR, or its construction monitor, will assure that all BMPs are followed	DWR Project Manager	During construction
Mitigation 3.6.1-3.2: Open Water Areas Managed for Carbon Sequestration If future research (prior to project implementation) shows that the restored wetlands are likely to sequester significantly less carbon than current estimates, the open water areas will be designed to be managed for maximum carbon sequestration.	DWR will assess monitoring data and adjust project design accordingly	DWR Project Manager	Pre construction
3.7 NOISE			
Mitigation 3.7.1-1: Noise from Hauling of Soils Hauling of fill from off-site borrow sites or off-hauling of any contaminated site soils shall minimize passing any substantial collection of noise-sensitive land uses (i.e. occupied houses, schools, hospitals), and shall be limited to less than 250 loads per day.	DWR, or its construction monitor, will take noise sensitive land uses into account when establishing haul routes	DWR Project Manager	Pre-construction
3.8 AESTHETICS			
No mitigations required.			
3.9 LAND USE			
No mitigations required.			
3.10 AGRICULTURAL RESOURCES			
No mitigations required.			

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
3.11 RECREATION			
<p>Mitigation 3.11.1-1: Watercraft Restrictions</p> <p>To minimize conflicts between motorized and non-motorized watercraft, 5 mile-per-hour speed limit signs (no wake zone) should be posted in Emerson and Little Dutch sloughs. In addition, signs should be posted at the entry points to the new open water areas indicating that no motorized watercraft are allowed. A mutual aid agreement with the Contra Costa Sheriff's Department Marine Unit and the California Department of Boating and Waterways would provide enforcement oversight as well as provide for public safety.</p>	<p>DWR, in coordination with the City of Oakley, will install signs. DWR will coordinate with the Sheriff and DBW.</p>	DWR Project Manager	During construction or post-construction
<p>Mitigation 3.11.1-2: Temporary Effects on Recreational Access During Project Construction</p> <p>Construction activities shall be phased and coordinated to minimize the amount of time that Marsh Creek Trail access would be restricted. Public notices with information on restricted access conditions and timeframes shall be posted on site and provided to any recreation users who have requested notification.</p>	DWR will provide notification on site and to interested users.	DWR Project Manager	During construction
<p>Mitigation 3.11.1-3: Provide Signage and Education on Trail Rules and Etiquette</p> <p>Signs shall be posted displaying the proper protocol and pamphlets shall be provided at the park and at all trailheads. In addition, outside of the dog run area, dogs must be on leashes no longer than 10 feet. There shall be a limit of 3 dogs per person in the City Community Park and Dutch Slough Restoration Project public access areas.</p>	<p>DWR, in coordination with the City of Oakley, will install signs.</p>	DWR Project Manager	Post-construction
3.12 CULTURAL RESOURCES			
<p>Mitigation 4.3-1: Develop and Implement Treatment Plan for CA-CCO-820/H to Minimize Site Disturbance</p> <p>Project construction will result in no excavation of site CA-CCO-820/H; specifics of how this will be achieved will be described in a treatment plan for the site that will be developed in consultation with DWR, SHPO, USACE (which is issuing permits for the Project), and the MLD. The treatment plan will be implemented prior to the start and during Project construction.</p>	DWR	DWR Project Manager	Pre-construction
<p>Mitigation 4.3-2: Develop and Implement Treatment Plan for Prehistoric Habitation Site in the Jose Vineyard to Minimize Site Disturbance</p>			

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
Project construction will result in little or no disturbance of this site; specifics of how this will be achieved will be described in a treatment plan for the prehistoric habitation site in the Jose Vineyard, that will be developed in consultation with DWR, SHPO, and USACE. The treatment plan will be implemented prior to the start and during Project construction.			
<p>Mitigation 4.3-3: Develop and Implement a Cultural Resources Monitoring and Inadvertent Discoveries Plan</p> <p>A Cultural Resources Monitoring and Inadvertent Discoveries Plan will be developed in consultation with DWR, SHPO, USACE, and the Native American community. This plan will include required monitoring of sensitive soils within the Project area and the protocol to follow in the event of inadvertent discovery of archaeological material. The treatment plan will be implemented prior to the start and during Project construction.</p>	DWR, or its construction monitor, will include cultural resource protection measures in educational sessions, and ensure that this measure is followed.	DWR Project Manager	During permit phase and during construction
<p>Mitigation 4.3-4: Worker Awareness Training</p> <p>Prior to construction, DWR staff shall meet with construction supervisors to explain the potential for discovering previously unidentified cultural resources, particularly in areas mapped as sensitive soils. Worker awareness training shall include an explanation of the circumstances and process for notifying DWR, USACE, and/or the County Coroner of the discovery of a potential cultural resource, as provided in Mitigation 4.3-3.</p>	DWR, or its contractor will conduct worker awareness training	DWR Project Manager	At start of construction
<p>Mitigation 4.3-5: Develop and Implement Treatment Plan for the Rural Historic Landscape</p> <p>A treatment plan for the RHL will be developed in consultation with DWR, SHPO, USACE, and the National Park Service. The treatment plan will be implemented prior to the start of, and during Project construction.</p>	DWR or its contractor will prepare and implement the treatment plan	DWR Project Manager	During permitting phase and before and during construction
3.13 TRANSPORTATION/TRAFFIC			
No mitigations required.			
3.14 PUBLIC SERVICES, UTILITIES AND SERVICE SYSTEMS			

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
No mitigations applicable to DWR project			
3.15 HAZARDS AND HAZARDOUS MATERIALS			
<p>Mitigation 3.15.1-1: Effects of Dutch Slough Parcel Soils Contamination</p> <p>A. The Dutch Slough Restoration Project shall comply with the ESA recommendations regarding the natural gas well sites. Specifically, the remaining appurtenances at the plugged and abandoned wells shall be removed, mercury impacted soils at Well Site #7 shall be excavated and removed for disposal and hazardous materials management practices at active Well Site #5 shall be reviewed: Petroleum impacted soils should be excavated and removed for disposal. The status of the remaining idle well sites (#3, #8, #11, #16) shall be determined and if they are not to be retained for future operation they shall be properly plugged and abandoned.</p> <p>B. Prior to development of the Dutch Slough Restoration Project, a Phase II ESA shall be performed to identify any hazardous materials issues associated with natural gas wells on the Gilbert parcel, and any remediation recommendations in that report shall be implemented.</p> <p>C. Prior to development of the City Community Park, Phase II ESA shall be performed to identify any hazardous materials issues associated with the former cattle waster pit on the Emerson parcel, and any remediation recommendations in that report shall be implemented.</p>	<p>DWR will ensure that remaining appurtenances at plugged and abandoned wells are removed</p> <p>DWR will conduct a Phase II ESA</p> <p>City of Oakley</p>	DWR Project Manager	<p>Pre construction</p> <p>Pre-construction</p>
<p>Mitigation 3.15.1-2: Health Risks Associated with Demolition Activities</p> <p>All structures proposed for demolition shall be assessed for asbestos and lead-based paints, and all recommendations of those evaluations shall be implemented. Details of these evaluations for the City Community Park property shall be included in the subsequent CEQA documentation for the park .</p>	DWR will assess all structures on its project site.	DWR Project Manager	Pre-demolition
<p>Mitigation 3.15.1-4.1: Adapt and Apply Regional (Central Valley/Suisun) Best Management Practices (BMPs) for Managed Marshes to Tidal Marshes</p> <p>Adapt BMPs for managed marsh to be compatible with basic ecological restoration objectives of</p>			

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
freshwater tidal marsh restoration in the western Delta, following applicable precedents from San Pablo Bay (Petaluma, Napa-Sonoma) and Suisun and Grizzly Bay marshes, in consultation with Contra Costa, Solano, and Marin-Sonoma MVCDs, the California Department of Fish and Game, and the U.S. Fish and Wildlife Service. Add tidal marsh MVCD activities to regional permits for MVCD activities in wetlands in the Central Valley.	DWR will adopt and apply BMPs for managed marsh as compatible with restoration objectives.	DWR Project Manager	During final design approval, and during construction
<p>Mitigation 3.15.1-4.2: Adapt and Apply Regional (Central Valley/Suisun) Best Management Practices (BMPs) for Managed Marshes to Open Water Marshes</p> <p>BMPs are habitat-based strategies that can be implemented when needed for mosquito control in managed wetlands. These strategies represent a range of practices that wetland managers can incorporate into existing habitat management plans or in the design of new wetland restoration or enhancement projects. Ideally, BMPs can be used to decrease the production of mosquitoes and reduce the need for chemical treatment without significantly disrupting the ecological character, habitat function, or wildlife use in managed wetlands. Not all BMPs would be appropriate for a given wetland location or set of circumstances.</p> <ul style="list-style-type: none"> • Timing of managed marsh flooding and drawdown (nontidal managed open water options). Timing of flooding and drawdown shall be coordinated with local MVCD, adapted to current-year temperature, rainfall patterns, and mosquito vector risks, to minimize mosquito production and vector risks. • Rapid flooding and drawdown of managed marsh. Marshes shall be flooded and drawn down (emerged bed) as quickly as operational controls allow. • Water control. Once wetlands have been flooded, water surface elevations shall minimally fluctuate prior to drawdown, except during winter periods of low mosquito production. Minimal fluctuation is based on the need to circulate water (maximize turnover). Marsh submergence depths shall be managed to maximize areas with minimal initial flooding depths of two feet (twenty four inches). • Wetland design features to reduce mosquito production. Managed wetland edges shall be constructed to enable efficient access by MCVD field crews for monitoring and 	DWR will adopt and apply BMPs for managed marsh as compatible with restoration objectives.	DWR Project Manager	During final design approval, and during construction

<i>Mitigation</i>	<i>Implementing Responsibility</i>	<i>Monitoring Responsibility</i>	<i>Mitigation Timing</i>
treatment. Edge slopes of managed nontidal marsh areas shall be steeper than to 4:1 (horizontal:vertical). Open water areas with sufficient fetch and wind-wave turbulence to minimize mosquito production shall be interspersed within managed marsh, at least 20% of total area. Floating aquatic vegetation shall be actively suppressed in open water areas within managed marsh.			
<p>Mitigation 3.15.2-4: Health Effects From Mosquitoes</p> <p>Same as for Alternative 1, but with the following additions: (a) minimize or eliminate artificial berms within middle or high marsh plains; replace their drainage divide functions with temporary structures that restrict fish movement without impounding water on the marsh surface, such as mesh or geotextile fabric fences; (b) adaptively modify marsh plain drainage patterns with amphibious excavation/dredging equipment to expose poorly drained backwater marsh areas to adequate tidal circulation and mosquito predator fish access; (c) Orient the Marsh Creek delta so that flood sediment deposition does not obstruct, occlude, or cut off tidal flows from channels and create standing water mosquito habitat.</p>	DWR will ensure that project designs and implementation minimize features that may increase mosquitoes	DWR Project Manager	During final design approval and during construction